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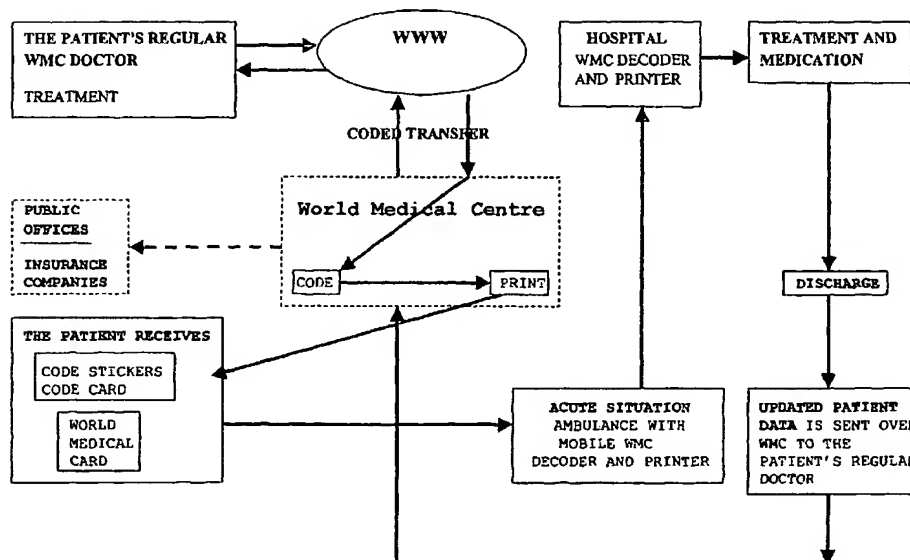
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[Continued on next page]

(54) Title: METHOD FOR SAFE TRANSFER OF PATIENT DATA ON A DATA CARRIER



(57) Abstract: Method for safe transfer of patient data on a data carrier, in that patient data is coded and transferred by means of a network to a central server comprising a database, said patient data being stored in a storage unit in the server, that coded data is transformed and printed on a data carrier which is kept by the patient, and that coded data is read from the data carrier by means of a reading unit and transformed to a legible form by a decoder. The data carrier comprises a sticker adapted to be carried by a user and/or arranged to a users personal equipment, wherein the sticker comprises a two-dimensional code as information carrier, printed on the sticker.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Method for safe transfer of patient data on a data
carrier.

The present invention relates to a method for safe
5 transfer of patient data on a data carrier, where patient
data is coded and transferred by means of a network to a
central server comprising a database, said patient data
being stored in a storage unit in the server. Coded data is
transformed and printed on a data carrier which is kept by
10 the patient, and coded data is being read from the data
carrier by means of a reading unit and transformed to a
legible form by a decoder.

From EP-A1 423893 it is known a method for storing and
monitoring of patient related information, in health
15 centre, wherein each patient is provided with at patient
connected electronic data carrier, which can be read out
and reprogrammed, Patient related data are stored both
locally in the patient connected electronic data carrier
and centrally in a central computer. Locally stored data
20 are compared in predetermined situations with the centrally
stored data and the two types of data are, if necessary,
matched.

A similar system is known from DE A1 19840005, which
discloses a communication system with an input device and
25 an output device, and a memory-storing unit, holding
patient mailboxes for input and output. The input device is
connected through an interface to terminals for bar-coded

form cards, patient chip cards and through another interface to the memory storage unit by means of a communication terminal. The system is to be used in hospitals and medical administrative systems for identifying details
5 about patients.

The present invention is an international concept that puts the safety of the patient in focus when the patient is undergoing any medical treatment. With the system according to the present invention a better diagnosis and basis for
10 treatment can be provided, and thereby the correct medication be given wherever the patient may be. It is often a problem in acute cases that the attending physician does not know anything about the patient's previous illnesses, uses of medication or allergies/reactions to
15 medication. This is particularly relevant when being taken ill abroad.

Such vital information can be decisive in avoiding the giving of the wrong treatment and the wrong medication. This is a problem, which is steadily increasing and
20 unfortunately can lead to loss of life for patients. In the US, it is defined as a society problem.

An object of the present invention is to make patient data available to any physician who is treating the patient. In addition, the system shall also ensure complete
25 protection of the patient's privacy. The founder of this system visualises that a web-based service centre is established in every country such that a network of local physicians, ambulance systems, emergency wards and hospitals is set up. These are authorised and are equipped
30 with the programs and equipment that are necessary for interactive web-communication with a central server.

An important part of the system is that the patient's regular physician keeps the medical journal and that essential elements of this are loaded onto a structured
35 medicine card. The card will contain the patient's diagnoses, illnesses/injuries, use of medication and allergies or reactions to medication. After registration, the physician provides the patient with a copy of the information on

the card, which the patient is given to have control over his/her own data. Thereafter, the physician sends the information on the card by means of a central server where the data is stored in a database. Before sending, the data
5 is automatically encrypted so that the patient's privacy is ensured.

The registered patient will receive a new copy of data, which is loaded into the database as a control of the copy, which is received by the physician. Furthermore, the
10 patient receives a two-dimensional code, which contains the same information. According to the present invention, this code is very important in that the patient will have the necessary data with him at all times. The code can be fixed to a self-adhesive means, which, for example, can be stuck
15 to the back of a watch and/or on a card to be kept together with other cards.

The advantage of the system is that it can function as quality assurance for physicians or nurses in daily treatments in institutions, in home-help situations or
20 during ordinary house calls. If anything should occur, for example abroad, a person who needs treatment can contact a physician, emergency ward or hospital, which are associated with the system. The personal code that is stored in the code which, for example, is stuck to the back of a watch,
25 can be read digitally and will thereby give direct information about the patient's medical data and the treatment can be started immediately.

Associated with the centrally placed database, which contains patient data, a complete medicine database can
30 also be arranged, which, for example, can point out harmful interactions between different medicines. Thus, automatic warning can be given if a physician tries to prescribe medicine which react to the other medicines used by the patient. Such an automatic warning can occur when the
35 information is written onto the card or in the database itself.

After treatment, the physician can transfer and load the treatment carried out and medication given into the

database, whereupon this is sent by way of a service centre to the patient's regular physician. The database is updated automatically and the patient is sent a new card and new codes if there are any changes with respect to the journal.

5 This system will give considerable advantages on the human level, make economic sense for industry, insurance companies, etc, and be economic for the society as it cuts down on absenteeism and social security and eases the burden on an already overloaded health system.

10 The present invention relates to a method for safe transfer of patient data on a data carrier, in that patient data is coded and transferred by means of a network to a central server comprising a database, said patient data being stored in a storage unit in the server, that coded
15 data is transformed and printed on a data carrier which is kept by the patient, and that coded data is read from the data carrier by means of a reading unit and transformed to a legible form by a decoder. The data carrier comprises a sticker adapted to be carried by a user and/or arranged to
20 users personal equipment, and where the sticker comprises a two-dimensional code as information carrier, printed on the sticker.

 In a preferred embodiments of the invention, the sticker with the two-dimensional code is adapted for
25 removable adhesion to the back of a watch, a piece of jewellery, etc., and/or to a card which is to be kept together with other cards. The coded data on the data carrier may comprise bar codes, fluorescent labels/tabs, digital chips, etc. Further, the two-dimensional code can
30 be dimensioned to a size of, for example, 10x10mm, on which all available medical information relevant for a person can be stored. For additional security, the code can be adapted to withstand a damage of up to approximately 25%, where the code is automatically self-rehabilitating, whereupon the
35 patient data is still legible after possible defacing or damage.

 The decoder, according to the invention, transforms data which is read from the data carrier, and the decoder

is connected to a printer for printing of legible patient data.

After a possible medical treatment of a patient, the patient's data is updated and transferred by means of the network to WMC, whereupon data is passed onto the patient's regular physician, the patient data is thereafter updated, coded and transferred by means of the network to the central server, whereupon new data is stored in the storage unit in the server, new coded data is transformed to a two-dimensional form and is printed onto a new data carrier which is kept by the patient.

The invention shall now be explained further with the aid of the enclosed figure, which shows the system according to the present invention.

The figure shows the construction of the system according to the present invention. Placed centrally is the "World Medical Centre" (WMC), which is comprised of a central database that contains patient data about each patient who is registered in the system. A patient's regular physician will keep the medical journal in his/her office. Essential elements of the information in the journal are transferred in encrypted form, by means of the network to the central database at WMC and are loaded onto a structured medical card. The medical card will contain the patient's diagnosis, illnesses/injuries, use of medication and allergies or reactions to medication. Before transmission, data is automatically encrypted so that the privacy of the patient is ensured.

The registered patient will receive a control-copy of the data, which is loaded into the database for control of the copies that are received by the physician. In addition to the medical card, the patient also receives a data carrier, which, for example, can be a two-dimensional code that contains the same information. The code can be arranged on a self-adhesive means which, for example, can be stuck to the back of a watch, piece of jewellery, etc., and/or on a card to be kept together with other cards. The data carrier can also be comprised of other types of code

systems, such as bar codes, fluorescent tabs, digital chips, etc., which will be known to those skilled in the art. The object of the code being in this form is, amongst other things, that it must be able to be fixed to another
5 object for simple storage.

In association with the centrally placed database in WMC, which contains patient data, a complete medicine database can be arranged, which, for example, can point out harmful interactions between different medicines. Thus,
10 automatic warning can be obtained if a physician attempts to prescribe medicines that react to the other medicines the patient is using. Such an automatic warning can occur when the information is written onto the card or in the database itself.

In a present embodiment example, the system is developed with a two-dimensional code as the information carrier in an encrypted form. The code can withstand damage of, for example, about 25% and is automatically self-rehabilitating, so that the information is still legible
20 after possible defacing or damage. One part of the code is used for its own encrypting so that it is not possible to read the information without authorisation. All transfer of the coded information is automatically encrypted or decrypted when transferred internally in the system. This
25 can be, for example, to a printer, a screen or to the central database.

For example, the code can be printed onto a sticker which can be fixed to the back of, for example, a watch, a piece of jewellery, etc. In addition, the code can be
30 printed onto a card and/or on a credit card/cash card. To read the code, a special reading unit has been developed. This reading unit can be in the form of a handheld scanner with a decoder, which can easily be used to read the encrypted information on the sticker.

35 The code and decoder are constructed such that only those authorised to can read the code. The code does not need to be larger than, for example, 10x10 mm, on which

accessible medical information that is essential for a person can be stored.

Thereby, the system comprises a central database, which is placed in a network, preferably an internet-based network. Data, which is stored in the database, is encrypted and printed onto stickers which persons/patients carry with them at all times. In any medical treatment, a scanner combined with a decoder is used, so that others besides the patient's regular physician, i.e. authorised medical personnel, can read the data on the sticker or the card containing the same information.

After treatment, the physician can write the treatment carried out and medication prescribed into his database, whereupon data is thereafter transferred to the central database in WMC and is stored in this. Thereafter, the data can be sent by means of the service centre to the patient's regular physician. The database is updated automatically and the patient will receive a new card and new codes if there are changes with respect to the journal.

Claims

1. Method for the safe transfer of patient data on a data carrier, in that patient data is coded and transferred by means of a network to a central server comprising a database, said patient data being stored in a storage unit in the server, that coded data is transformed and printed on a data carrier which is kept by the patient, and that coded data is read from the data carrier by means of a reading unit and transformed to a legible form by a decoder, characterised in that the data carrier comprises a sticker adapted to be carried by a user and/or arranged to a users personal equipment, and in that the sticker comprises a two-dimensional code as information carrier, printed on the sticker.

2. Method in accordance with claim 1, characterised in that the sticker with the two-dimensional code is adapted for removable adhesion to the back of a watch, a piece of jewellery, etc., and/or to a card which is to be kept together with other cards.

3. Method in accordance with claim 2, characterised in that coded data on the data carrier comprises bar codes, fluorescent labels/tabs, digital chips, etc.

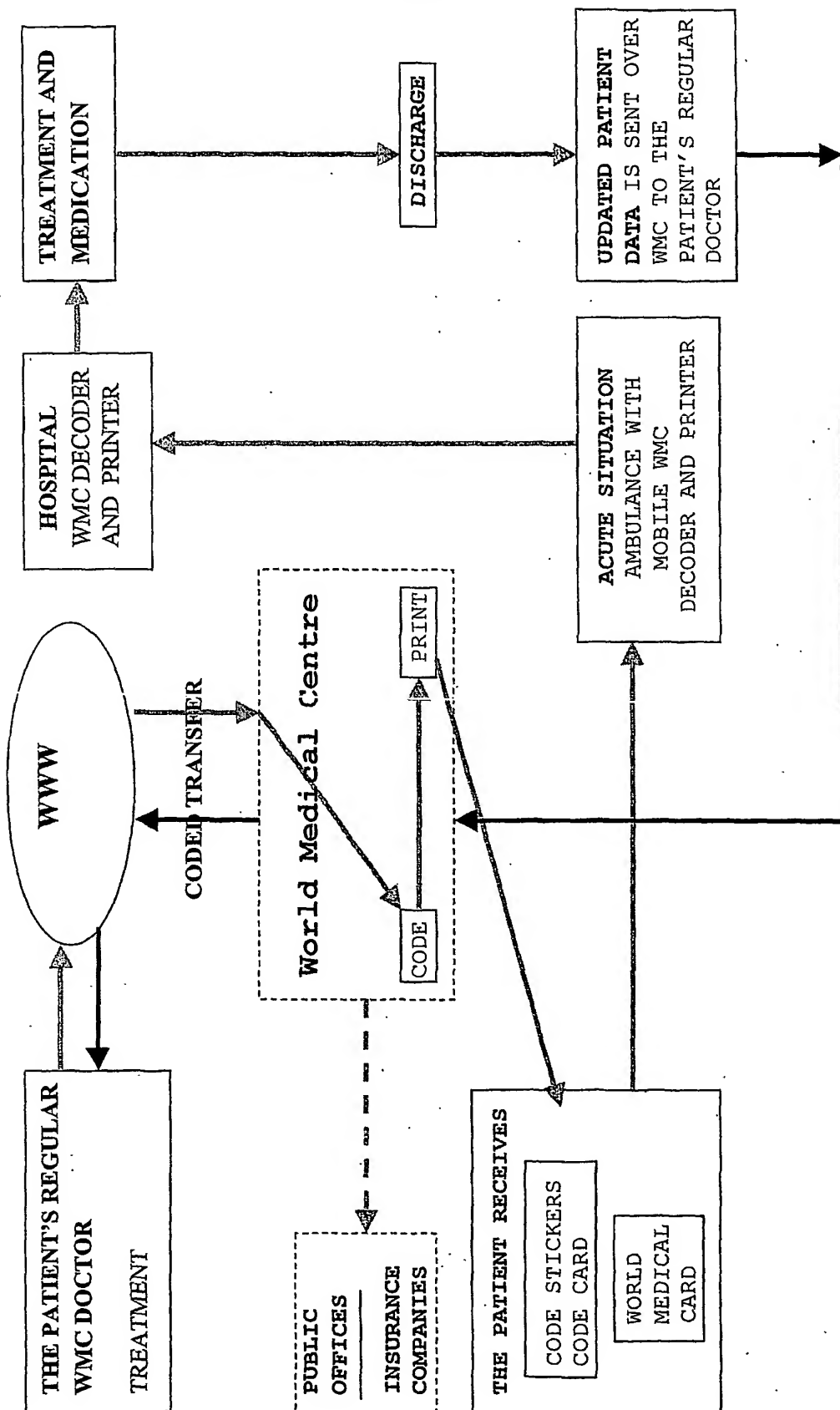
4. Method in accordance with claim 2 or 3, characterised in that the two-dimensional code is dimensioned to a size of, for example, 10x10mm, on which all available medical information relevant for a person can be stored.

5. Method in accordance with claims 2-4, characterised in that the decoder transforms data which is read from the data carrier, and that the decoder is connected to a printer for printing of legible patient data.

6. Method in accordance with claim 2-4, characterised in that the code is adapted to withstand a damage of up to approximately 25% and that the code is automatically self-rehabilitating, whereupon the patient data is still legible
5 after possible defacing or damage.

7. Method in accordance with any of the preceding claims, characterised in that after a possible medical treatment of a patient, the patient's data is updated and transferred by
10 means of the network to WMC, whereupon data is passed onto the patient's regular physician, the patient data is thereafter updated, coded and transferred by means of the network to the central server, whereupon new data is stored in the storage unit in the server, new coded data is
15 transformed to a two-dimensional form and is printed onto a new data carrier which is kept by the patient.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/NO 02/00149

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: G06F 19/00 // G06F 159:00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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X	US 5924074 A (EVANS, J.A.), 13 July 1999 (13.07.99), abstract	1
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☒ Further documents are listed in the continuation of Box C.
 ☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search	Date of mailing of the international search report
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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INTERNATIONAL SEARCH REPORT

Information on patent family members

06/07/02

International application No.

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